

Some Reform Ideas for Online Teaching on Colleges and Universities

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ABSTRACT. Online teaching has gained more and more attention for the new coronavirus pneumonia. People feel the advantages of online teaching, not limited by time and space, and more concentrate for college students. This paper introduces the main measures of online teaching during the epidemic in our school and proposes some reform ideas. According to OBE (Outcomes-based Education), teacher-centered is changed to student-centered, and project-driven, cases study and team work practice are adopted to improve the teaching quality. Results show these attempts for online teaching have received very good effect. Hope this paper can give a little reference value.

KEYWORDS: Online teaching, Obe, New coronavirus pneumonia, Project-driven, Student-centered

1. Introduction

To prevent and control new coronavirus pneumonia, the Ministry of education in China has urged all schools to disrupt class and use online platforms to conduct online education. There are 518,800 schools at all levels, with 16.728,500 full-time teachers and 276 million students in China [1]. Online teaching has become the focus of the whole society.

At first, many teachers and students are not suitable for online teaching. First of all, teachers are unfamiliar with online teaching methods and are not proficient in the use of online teaching platforms and tools. The teacher feels very unaccustomed to singing monologue because we can't see the expression of the students. For students, some students do not consciously, when the teachers let them learn by themselves and watch the online video, they do not go to study it seriously. It is difficult to guarantee the quality of teaching. In particular, some teachers in high school mainly let student self-study and only ask questions in wechat or QQ group instead of live courses on live-broadcasting platforms.

Our school is an application-oriented university which emphasizes on the training of students' practice and innovation ability. OBE (Outcomes-based Education) has three core theories: Student Centered, Achievement Oriented, and Continuous Improvement [2]. According to OBE, we change from Teacher-centered to Student-centered in online teaching. There are a lot of online teaching platforms, such as Zoom, Chaoxing Study, Tencent classroom, Nail and Classin etc. How to select a suitable platform? How to control the classroom? There are a lot of problems to solve. In order to improve the online teaching quality, this paper first introduces the main measures during the epidemic in our school. Then present some reform ideas for online teaching. Software project management curriculum is used as illustrated. The outcome of this reform showed good effect, as evidenced by survey and feedback from students.

The remainder of this paper is organized as follows: Section 2 introduced the measures of online teaching during the epidemic in our school; Section 3 presented some reform ideas for online course teaching. Section 4 proposed some reform ideas on practice teaching and assessment; Section 5 draws a conclusion for this paper.

2. The Main Measures for Online Teaching

In accordance with the requirements of "Disrupted Class, Undisrupted Learning" issued by the Ministry of education in China, our school held online teaching training for teachers and students to ensure the smooth implementation of the teaching work during the epidemic prevention and control period in spring semester, and to help teachers effectively use the network platform to carry out online teaching. Our school uses Chaoxing network teaching platform. At the beginning, some teachers and students had many complains because they are unfamiliar with this network teaching platform. The training module mainly includes: 1. The use of online platform; 2. Online course construction; 3. Online platform teaching; 4. Online teaching management.

Chaoxing company creates training courses in the platform, uploads operation video and operation manual [3]. With them, teachers can learn by themselves. First, teachers must learn how to create a course in the platform. Second, learn how to construct exercises bank, test bank, upload and download materials etc. Third, learn how to manage the class, like how to join all students of one class etc. Fourth, study how to classroom interaction, such as sign in, race to the first or select some students to answer questions. Last, release homework and test, and course data statistics etc. If teachers have some questions, they can ask questions through online consultation or wechat group or other ways.

Our school also lay down a series online teaching guarantee plans. We have a strict schedule, which specifies the tasks, details, submission date and responsible person of each work. Every teacher should make a schedule for his own curriculum and fill them in a form of “one lesson, one case”, which should be reviewed by the professional director and the college. Teachers should create courses in the school's online teaching platform, upload course documents, like syllabus, teaching schedule, ppt, lesson plan, assignments and electronic reference materials, experimental instructions, etc.; collect or build online teaching resources. The professional director inspects and urges the construction of teachers' online teaching resources and the curriculum content. In the course of teaching space, teachers should establish course website and a wechat group of his class, and give the course and class wechat QR code to the professional director, who will report to the college, and send them to students.

After class, teachers should make statistics for each course: total number, normal learners, number of people with intermittent Internet speed, number of people who can't get on all the time etc. Through the quick answer and shaking students to answer, and different reward scores are given according to the order and accuracy of answers. Rewards make the attraction, affinity and appeal of online teaching are effectively enhanced.

3. Reform on Course Online Teaching

We use software project management curriculum as illustrate. Because project management involves much work experience and theories, it is difficult to fully demonstrate the process of project management, students feel boring and hard to learn it well. How can online classes attract students' attention that they don't like in the classroom? Fortunately, this course has a good foundation; it used to be a key course construction course in Shanghai. We have already made some reforms for this curriculum and constructed a course website which has many course materials, such as project cases, exercises, animations, rhythms etc. We have investigated and consulted a number of experts, peers in enterprise companies and teachers in other universities. Based on the investigation, we synchronous update course content, teaching methods and teaching methods of the software project management course. In the process of teaching, we mainly use project-driven, cases study and heuristic teaching methods.

The elements of teaching are not limited to the inherent mode, and can be flexible according to the actual situation, so as to achieve easy investment and effective learning effect [4]. During the new coronavirus epidemic situation, we adopt Chaoxing online platform, Tencent Conference live class, MOOC and wechat group mode. We design and tell students specific tasks and activities to complete by both students' interaction and student-teacher interaction online, which will encourage teamwork and deeper understanding. We construct a website on the Chaoxing online platform. In the website, we have many course documents, like syllabus, teaching schedule, ppt, study cases, animations, assignments, electronic reference materials and experimental instructions etc. We announce the class arrangement which give students explicit tasks and activities in advance on the wechat group before each class. This course has 32 class hours, include 24 theoretical class hours and 8 practical courses. Usually, theoretical online courses arrangement is shown as below:

The first lesson, students should sign in on the Chaoxing online platform. The teacher will check and remind the students who don't sign in on time. Then students are required to self-study the designated chapters on Textbook and corresponding PPT; and study the demanded video on MOOC. For the self-study, we focus on training students' abilities of find, analyse and solving problems. Two cases that from the beginning to the end to help students understand the actual procedure of project management. One is the traditional structured development case; the other is the agile development case. Learn how to scope, time, cost, quality, HR, communication, risk and procurement management and control during the process of software project management. Cases study teaching mode is one of the best ways for students to understand the theory in the book. In the website, we have built a case study library which has some good actual cases, including some success and failure project cases, some object-oriented cases and structured cases. Use it, students can simulate, analysis and reference during the course study. We also collect a lot of templates for management process areas, such as template for project initiation, planning, execution control, project closure phase and other standard templates.

On the second class, we mainly check the effect of self-study and explain key and difficult knowledge. We will release some quick answers or designated students to answer questions. Students will be rewarded 1-5 scores according to the order and accuracy of the answers. Then teachers will live broadcast the key and difficult knowledge and have class discussion by Tencent Conference. The original procedure is “basic concepts introduction → cases imported →

cases analysing → question → summary”. Because students have self-studied, the new procedure is “important concepts explain→ cases analysing → question → summary”. We have collected many related scenario animations. These vivid scenario animations simulate the procedures of software project management. They can help students to know what will happen and how to handle them at the various stage of the project management. In the classroom, we will play these animations during the process of basic concepts introduction. These animations can help students to understand the concepts intuitively and easily. In the online class, students are required to watch animations by themselves. In order to improve student's active participation and interaction with teachers in class, we encourage students ask questions whenever they have questions. Teachers should answer the questions and often ask “Is there a problem?” after one knowledge point is completed. After class, students should finish the unit test and send screen capture to teacher. At last, students must finish the homework which released on the Chaoxing online platform.

Teachers can issue questionnaires to ask students about their suggestions for online teaching. The result of questionnaires from students showed the online teaching effect is good, the attention is focused and can study better. We hope open sharing, collaboration and autonomy to provide more convenience for the students who fight against epidemic situation at home. We should change from simple knowledge transfer to the cultivation of innovation and comprehensive ability.

4. Reform on Practice Online Teaching and Assessment

Application is the road to understanding theory. We should concentrate on connecting knowledge of basic concepts with reality. This will encourage a deep learning and understanding of the learned knowledge. Software project management curriculum stresses on training students' skills of practice and engineering. How to combine theory with practice, increase practice teaching, is the emphasis of reform.

In the actual practice process, it's important to train the students' abilities of cooperating, planning, engineering, communication, expression and leading. In fact, these abilities could be improved mainly by practice. In the curriculum, we use project-driven teaching mode. The experimental online course arrangement is shown as below:

First, students should also sign in on the Chaoxing online platform. The teacher will check and remind the students who don't sign in on time. Then, students should finish the demanded experiment. The experimental instructions have been given to students at the beginning of the semester.

Students are required to make a plan for a project using the learned concepts in teams of 3-5 persons. The team members are self-selected by the students and there must have a team leader. Each team should make a plan for a software project with given tasks. In the practice, students should grasp some project management tools like Microsoft Project, SVN, and Git etc. These tools can help them to manage the software process more efficient.

Experimental classes are usually arranged in the later period of the semester. During the period of the epidemic, it was unable to enter the laboratory. But it doesn't matter much to our course for students only need to install the required software on their own computer. We require every student must division and cooperation. We will answer questions in Tencent meeting and take 1-2 teams to demonstrate the experimental results. The teacher will comment on the students' presentation and make suggestions for revision. Students in other groups can ask questions or get some inspiration from the teacher's comments and others work.

Making explicit criteria for course assessment is also very important. We should let students know exactly what they must complete and submit and how they can get high score. We have already set up an explicit criterion for this practice assessment. In the experiment guidebook, we make a list to let students know what they must complete and submit at each phase, and how they can get high scores. At the final acceptance phase, each team should submit their project, documents and prepare for an oral defence. Students are assessed individually as well as in teams. Each team and each student must have an individual oral presentation for his work. Students' final grade depends on the quality of project planning, documents, daily performance and oral presentations. Team members will get different grades, 40% of the grade is according to team performance and 60% on the basis of the individual achievement. We have differentiated pass grades as A, B, C, D in order to increase student interest by rewarding those who work hard than just acceptable [5].

Through the project practice, students could understand better understanding of the concepts and principles in the books. Through the live chat box and real-time interaction with students, the first time feedback and answer to students' questions, significantly improving the learning efficiency. This online course proved to be a success with majority of the students giving positive feedback.

5. Summary

The new coronavirus epidemic has brought great challenges and opportunities to our education. Most teachers and students change from resistance to like online teaching. The Ministry of Education in China said: online teaching should move from “freshness” to “new normal”. In the future, we will also adopt the online and offline integration teaching mode. In order to develop the ability of engineering, innovation design, communication, teamwork spirit, ability of lifelong learning etc. This paper introduces some reform ideas for online teaching during epidemic in our school. Different from the traditional teaching mode, we change from Teacher-centered to Student-centered and adopt heuristic teaching methods, like project-driven practice, actual cases study, management rhythms and teamwork etc. We will make continuous improvement in the future. The survey shows that students learning autonomy, interaction between teachers and students, accuracy of teaching management have improved greatly on online teaching.

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